



STARS ACADEMY LAHORE

MULTAN CAMPUS

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STARS ENTRY TEST SYSTEM-2019 MDCAT (CRASH PROGRAM)

Test Code: CRASH 13

Time Allowed: 150 mins

BIOLOGY

- The male gametophyte of an angiosperm is the:
A) Anther C) Embryo sac
B) Microspore D) Germinated pollen grain
- The double fertilization is the characteristic feature of:
A) Gymnosperms B) Bryophytes C) Angiosperms D) Pteridophytes
- Clitorea ternatea is used against:
A) Cat bite B) Snake bite C) Dog bite D) Scorpion bite
- Tracheophyta is further subdivided into:
A) 2 sub-divisions B) 4 sub-divisions C) 3 sub-divisions D) 7 sub-divisions
- All seed produced plants are called:
A) Bryophytes B) Peridophytes C) Tracheophytes D) Spermatophytes
- Living genus of Psilopsida is:
A) Cooksonia B) Horneophyton C) Psilophyton D) Psilotum
- Amphibious plants belong to group:
A) Angiospermae B) Pteridophyta C) Bryophyta D) Filicinae
- The plants belonging to group Sphenopsida are also called:
A) Amphibians of the plants B) Club mosses C) Hornworts D) Arthropytes
- Vascular System is absent in:
A) Bryophytes B) Gymnosperm C) Pteridophytes D) Angiosperms
- The process of evolution of leaf was completed in more than:
A) 15-16 million years C) 15-17 million years
B) 15-19 million years D) 15-20 million years
- The part of flower which develops into fruit is:
A) Flower B) Ovule wall C) Seed D) Ovary wall
- In mosses, archegonia and antheridia are mixed with sterile hairs called:
A) Mycelium B) Hypha C) Paraphyses D) Trichomes
- Family Gramineae has:
A) Only wheat B) Only corn C) Only rice D) All of these
- The sources of staple food for man are plants which belong to the family:
A) Mimosaceae B) Rosaceae C) Poaceae D) Fabaceae
- Enterobius vermicularis is called:
A) Shipworms B) Bookworms C) Hookworms D) Pinworms
- Ancylostoma duodenale is biological name of:
A) Flatworm B) Roundworm C) Tapeworm D) Fluke
- Polymorphism is the characteristic of members of phylum:
A) Porifera B) Annelida C) Cnidaria D) Arthropoda
- In birds, the organs of voice is called:
A) Larynx B) Syrinx C) Vocal cord D) Voice box
- The animal with exceptionally large brain is:
A) Star fish B) Octopus C) Snail D) Sepia
- Ascaris lumbricoides is an intestinal parasite of:
A) Horse B) Man C) Donkey D) Monkey
- The phylum which is exclusively marine is:
A) Cnidaria B) Porifera C) Echinodermata D) Annelida

22. The presence of notochord is the character of:
 A) Arthropoda B) Mollusca C) Nematoda D) Chordates
23. Pseudocoelom is characteristic feature of phylum:
 A) Nematoda B) Echinodermata C) Mollusca D) Annelida
24. The Excretory system of Flatworms is composed of:
 A) Nephron B) Nephridia C) Flame cells D) Ganglia
25. The largest invertebrate animal is:
 A) Dog fish B) Cuttle fish C) Giant Squid D) Octopus
26. Neantocysts are the characteristics of phylum:
 A) Nematoda B) Coelenterata C) Platyhelminthes D) Annelida
27. A rasping tongue like radula having horny teeth is present in:
 A) Sponges B) Coelenterata C) Annelids D) Molluscs
28. ----- has eight eyes:
 A) Lamprey B) Bat C) Snake D) Spider
29. Sea Urchin belongs to phylum:
 A) Coelenterata B) Nematoda C) Porifera D) Echinodermata
30. The pores by which the water leaves the body of sponges is called:
 A) Ostia B) Anus C) Mouth D) Osculum
31. Excretory organs in arthropods are called as:
 A) Kidney B) Malpighian tubules C) Nephridia D) Flame cell
32. Mammals became dominant in:
 A) Cenozoic Period B) Mesozoic Period C) Paleozoic Period D) Proterozoic Period
33. Schistosoma is commonly called:
 A) Liver Fluke B) Planaria C) Tapeworm D) Blood Fluke
34. Nephridia are excretory structures of:
 A) Sponges B) Arthropods C) Annelids D) None of them
35. Larva of Molluscs and Annelids:
 A) Radula B) Trochophore C) Plannula D) Gemmule
36. The asexual reproduction in sponges occurs by:
 A) Budding B) Spores C) Fragmentation D) Conidia
37. In protostomes, the blastopore forms:
 A) Anus B) Excretory pore C) Brain D) Mouth
38. Colonial coelenterates such as corals produce hard exoskeleton formed of:
 A) NaCO_3 B) NaOH C) CaCO_3 D) CaOH
39. Sharks and rays are included in class:
 A) Cyclostoma B) Chondrichthyes C) Osteichthyes D) Tetrapoda
40. Name the vertebrates which are without jaws:
 A) Osteichthyes B) Chondrichthyes C) Cyclostoma D) None of these
41. Which of the following are called placental mammals?
 A) Prototheria B) Metatheria C) Eutheria D) All of these
42. Name the class without antenna:
 A) Arachnida B) Insecta C) Myriapoda D) Crustacea
43. Which of the following damages wooden ships?
 A) Sepia B) Teredo C) Limax D) Ostrich
44. The platyhelminthes liver fluke is:
 A) Ectoparasite in humans B) Blood parasite C) Parasite of respiratory tract D) Parasite in the bile duct
45. Which of the following is of economic importance to man:
 A) Daphnia B) Silkworm C) Millipede D) Scorpion
46. Fasciola is the name given to:
 A) Tapeworm B) Liver fluke C) Planaria D) Earthworm
47. Ascaris is:
 A) Diploblastic B) Maptoic C) Triploblastic D) Acoelomate
48. During development, in an animal, mesoderm layer gives rise to:

- A) Nervous system
B) Alimentary canal lining
C) Muscular and skeletal system
D) Mouth
49. The cavity between body wall and alimentary canal is:
A) Coelom
B) Endoderm
C) Mesoderm
D) Mesoglea
50. The layer which forms the lining of digestive tract and glands of digestive system is:
A) Ectoderm
B) Endoderm
C) Mesoderm
D) Mesoglea
51. Which one of the following is the primary host of liver fluke?
A) Mosquito
B) Snail
C) Sheep
D) Dog
52. Which one of the following is an example of a free living carnivorous flatworm?
A) Liver fluke
B) Tapeworm
C) Dugesia
D) Schistosoma
53. In arthropods, the body cavity is in the form of:
A) Coelom
B) Pseudocoelom
C) Haemocoel
D) Enteron
54. ----- is a good example of polymorphism:
A) Hydra
B) Obelia
C) Starfish
D) Euplectella
55. Name common gut roundworm parasite of human and pigs:
A) *Ascaris lumbricoides*
B) *Lumbricus terrestris*
C) *Pheretima posthuma*
D) *Hirudo medicinalis*
56. Taenia is an endoparasite of human, pig and cattle which belongs to phylum:
A) Cnidaria
B) Annelida
C) Aschelminthes
D) Platyhelminthes
57. Snails are the intermediate hosts in:
A) *Fasciola hepatica*
B) *Schistosoma*
C) *Taenia solium*
D) *Ancylostoma duodenale*
58. Which group of animals belong to the same phylum?
A) Malarial parasite, Amoeba, Mosquito
B) Earthworm, Pinworm, Tapeworm
C) Prawn, Scorpion, Locusts
D) Sponge, Sea anemone, Starfish
59. Which of the following is correctly matched?
A) Radial symmetry – Coelenterates
B) Coelomates – Aschelminthes
C) Metamerism – Molluscs
D) Triploblastic – Sponges
60. Which of the following are correct for gymnosperms?
I. They are heterosporous.
II. They are the first vascular plants.
III. Posses fruits
IV. Requires water for fertilization.
A) I
B) II and III
C) I and II
D) I, II, III and IV
61. What is the main feature of bryophytes?
A) Gametophyte attached with sporophyte
B) Sporophyte attached with gametophyte
C) Ciliated sperm
D) Capsule
62. Gymnosperms are the plants which
A) Bear flowers
B) Bear fruits but no vascular tissue
C) Produce seeds in cones
D) Do not produce seeds in cones
63. The segment of Taenia solium is called as
A) Ring
B) Segment
C) Metameric
D) Proglottids
64. All of the following are triploblastic animals except:
A) Amphibian
B) Mollusca
C) Coelenterata
D) Echinodermata
65. Hermaphrodite phylum is:
A) Annelida
B) Arthropoda
C) Echinodermata
D) Mollusca
66. Nereis belongs to phylum
A) Nematoda
B) Annelida
C) Mollusca
D) Arthropoda
67. The first plants that formed true leaves and roots were
A) Lycopods
B) Psilopods
C) Sphenopods
D) All of the these
68. Of the following, which one is not true about bryophytes
A) They are non-vascular flowering plants
B) They need water for their reproduction
C) They are called amphibious plants
D) Gametophyte dominant
69. In Filicinae the sporangia are attached to
A) Stem
B) Fronds
C) Sporangophore
D) Cones
70. The development of seed habit took place during
A) Jurassic
B) Permian
C) Early Devonian
D) Late Devonian
71. The heterosporous plant is a one that
A) Produces a monoecious gametophyte
B) Produces microspores and megaspores
C) Reproduces asexually only
D) Reproduces sexually only
72. Multicellular animals were, broadly, referred to is:
A) Metazoa
B) porifera
C) Protozoa
D) Parazoa

73. All biologists agree that animals evolved from:
 A) Bacteria B) Cyanobacteria C) Protoctists D) All of above
74. The characteristic stinging cells of phylum coelenterata are called:
 A) Podocytes B) Pinacocytes C) Nematocysts D) Choanocytes
75. In arthropods the sensory organs are usually:
 A) A pair of compound eyes C) Antennae
 B) A pair of compound eyes and antennae D) A pair of legs
76. In arthropods the larva resembles adult and called;
 A) Lymph B) Syninx C) Instar D) Trochopore
77. The process of shedding of exoskeleton in arthropods is called:
 A) Ecdysis B) Metamorphosis C) Moulting D) A & C correct
78. Which of the following is not an echinoderm?
 A) Brittle star B) Octopus C) Sea urchin D) Cake urchin
79. Opossum and Kangaroo are included in the sub-class:
 A) Prototheria B) Eutheria C) Metatheria D) None of above
80. The body of birds is covered by:
 A) Scales B) Spines C) Feathers D) Hair

CHEMISTRY

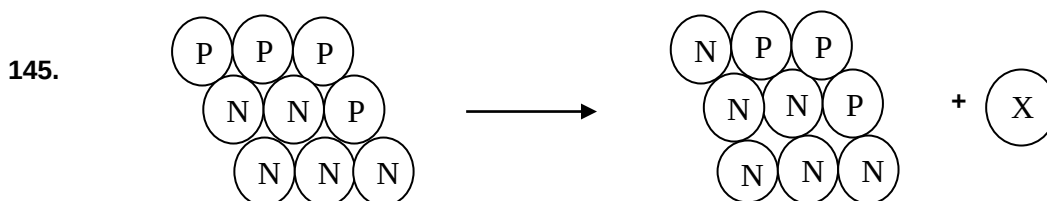
81. Ammonia will not form complex ions with
 A) Ag^+ B) Cd^{2+} C) Cu^{2+} D) Pb^{2+}
82. $\text{K}_4[\text{Fe}(\text{CN})_6]$ is a
 A) Double salt B) complex compound C) neutral molecule D) None of these
83. According to Lewis concept, the ligands are
 A) Acidic in nature C) some are acidic and others are basic
 B) Basic in nature D) neither acidic nor basic
84. The isomerism exhibited by $[\text{Cr}(\text{NH}_3)_3\text{Cl}_3]$ is
 A) Co-ordination isomerism C) linkage isomerism
 B) Hydrate isomerism D) Geometric isomerism
85. The compounds $[\text{PtCl}_2(\text{NH}_3)_4]\text{Br}_2$ and $[\text{PtBr}_2(\text{NH}_3)_4]\text{Cl}_2$ constitutes a pair of
 A) Co-ordination isomerism C) linkage isomerism
 B) ionization isomerism D) Geometric isomerism
86. The shape of $[\text{Pt}(\text{NH}_3)_4]^{2+}$ is
 A) Tetrahedral B) square planar C) pyramidal (d) octahedral
87. Which one of the following is an example of octahedral complex ion?
 A) $[\text{FeF}_6]^{3-}$ B) $[\text{Zn}(\text{NH}_3)_4]^{2+}$ C) $[\text{Ni}(\text{CN})_4]^{2-}$ D) $[\text{PdCl}_4]^{2-}$
88. Which one of the following complexes is not expected to exhibit isomerism?
 A) $[\text{Ni}(\text{NH}_3)_4(\text{H}_2\text{O})_2]^{2+}$ C) $[\text{Pt}(\text{NH}_3)_2\text{Cl}_2]$
 B) $[\text{Ni}(\text{NH}_3)_2\text{Cl}_2]$ D) $[\text{Ag}(\text{NH}_3)_2]^{1+}$
89. The complexes $[\text{Co}(\text{NH}_3)_6][\text{Cr}(\text{CN})_6]$ and $[\text{Cr}(\text{NH}_3)_6][\text{Co}(\text{CN})_6]$ are the examples of which type of isomerism?
 A) Linkage isomerism C) Coordination isomerism
 B) Ionization isomerism D) Geometrical isomerism
90. $\text{CH}_3\text{-Mg-Br}$ is an organ metallic compound due to
 A) Mg-Br bond B) C-Mg bond C) C - Br bond D) C - H bond.
91. The oxidation state Cr in $[\text{Cr}(\text{NH}_3)_4\text{Cl}_2]^+$ is
 A) 0 B) + 1 C) + 2 D) + 3
92. The IUPAC name of the coordination compound $\text{K}_4[\text{Fe}(\text{CN})_6]$ is?
 A) Tripotassium hexacyanoiron (II) C) Potassium hexacyanoiron (II)
 B) Potassium hexacyanoferrate (III) D) Potassium hexacyanoferrate (II)
93. The IUPAC name for the complex $[\text{CoCl}(\text{NH}_3)_5]\text{Cl}_2$ is :
 A) Pentaammine chlorocobalt(II) chloride C) Pentaammine chlorocobalt(III) chloride
 B) Chloropentaamminecobalt(III) chloride D) Chloropentaamminecobalt(II) chloride
94. The ionisation isomer of $[\text{Cr}(\text{H}_2\text{O})_4\text{Cl}(\text{NO}_2)]\text{Cl}$ is
 (a) $[\text{Cr}(\text{H}_2\text{O})_4(\text{NO}_2)]\text{Cl}_2$ C) $[\text{Cr}(\text{H}_2\text{O})_4\text{Cl}_2]\text{NO}_2$
 B) $[\text{Cr}(\text{H}_2\text{O})_4\text{Cl}(\text{ONO})]\text{Cl}$ D) $[\text{Cr}(\text{H}_2\text{O})_4\text{Cl}_2(\text{NO}_2)]\text{H}_2\text{O}$
95. The oxidation number of cobalt in $\text{K}_3[\text{Co}(\text{NO}_2)_6]$ is:
 A) -3 B) +3 C) -4 D) +4
96. The number of d - electrons of Cr in $[\text{Cr}(\text{NO}_2)_6]^{3-}$ is :
 A) 2 B) 4 C) 5 D) 3
97. Which of the following ions of transition metal is expected to be colourless?
 A) Zn^{2+} B) Cu^{2+} C) Ti^{3+} D) Co

98. Oxidation state of Fe in $\text{Na}_3[\text{Fe}(\text{Cl})_6]$
 A) +2 B) -3 C) +6 D) +3
99. The element with electronic configuration $[\text{Ar}]3d^5 4s^2$ will be expected to:
 A) Form coloured ions C) Have low melting point
 B) Form complex compound D) Both A and B
100. Transition elements show:
 A) Inert pair effect C) Variable oxidation state
 B) Low melting point D) more reactivity than alkali metals
101. In the first transition series which of the following elements has maximum paired electrons:
 A) Fe B) Cr C) V D) Cu
102. Which of the following is a typical transition elements:
 A) Sc B) Cd C) Y D) Co
103. Which species does not act as ligand in the formation of complex:
 A) NH_3 B) H_2O C) OH^- D) NH_4^+
104. Which of the following transition metals has unpaired electron in s orbital in the ground state:
 A) Cr B) Co C) Fe D) Mn
105. Acid rain may cause:
 A) Rusting easier C) reduced fertility of soil
 B) Damages to sculptural materials D) All of these
106. Which one of the following is incorrect for nitrogen with respect to group VA:
 A) It has the smallest size C) It can form multiple bonds
 B) It has the highest electronegativity D) It shows allotropy
107. The maximum introduction of SO_2 in atmosphere is caused by:
 A) Combustion of fuel C) Volcanic eruption
 B) Industrial smoke D) Roasting of sulfide ores
108. SO_3 is not directly dissolved in water to form H_2SO_4 because:
 A) The reaction does not go to completion C) The reaction is quite slow
 B) The reaction is highly exothermic D) SO_3 is a reducing agent
109. Which one of the following cause precipitation upon reacting with H_2SO_4 :
 A) $\text{Pb}(\text{NO}_3)_2$ B) BaCl_2 C) KNO_3 D) Both A & B
110. The amount of micronutrients required per acre:
 A) 2 to 200mg B) 6 to 200g C) 3 to 200 μg D) 5 to 200 kg
111. When iron pyrites burn in air, the gas produced is:
 A) SO_2 B) H_2S C) SO_3 D) CO_2
112. Which of the following nitrogenous fertilizer contains maximum percentage of nitrogen:
 A) $(\text{NH}_4)_2\text{HPO}_4$ B) $(\text{NH}_4)_2\text{SO}_4$ C) $(\text{NH}_2)_2\text{CO}$ D) NH_4NO_3
113. Prilling is a process in which:
 A) Concentration of urea is increased C) Water is removed from urea
 B) Molten urea is converted to solid drops D) some other ingredients are added to urea
114. Anomalous behavior of nitrogen is due to:
 A) Ease of formation of triple bond C) Its small size and high electronegativity
 B) Non-availability of d-orbital D) All of the above
115. In contact process during manufacturing of sulphuric acid, a strong beam of light is thrown against the gases in testing box in order to check that the gases are absolutely free from:
 A) Solid particle B) Moisture C) V_2O_5 D) Both A and C
116. In the reactions of the sulphuric acid with different metals, the nature of products depends upon all of these except:
 A) Nature of metals B) Amount of metal C) Temperature D) Concentration of acid
117. Which of the following is a macronutrient:
 A) B B) Mo C) Mn D) Mg
118. In Haber's process the equilibrium mixture contains 35% ammonia, that is separated from the reaction mixture by:
 A) Dissolving in water C) Cooling above its critical temperature
 B) Cooling below its critical temperature D) Decreasing pressure at room temperature
119. The percentage of Nitrogen in urea is about:
 A) 18.05% B) 28.29% C) 46.66% D) 85.56%
120. Which of the following element has 2 electrons in 4s and belongs to 3d-series?
 A) Fe B) Al C) Cr D) Cu
121. Which is not an application of sulphuric acid:
 A) Electrolyte in batteries C) Desulphurization of petroleum
 B) Calico printing D) Manufacturing of paints
122. Which one of the following is most paramagnetic in nature
 A) Cr^{+3} B) Mn^{+2} C) Fe^{+2} D) Co^{+2}
123. The correct formula of Tetrammineaquabromocobalt(III)nitrate is

124. Which of the following is a chelating ligand?
 A) Cl^- B) OH^- C) NH_3 D) $\text{C}_2\text{O}_4^{2-}$
125. $\text{NH}_2\text{CH}_2\text{CH}_2\text{NH}_2$ is an example of _____ ligand:
 A) Anionic B) Bidentate C) Neutral D) Both B and C
126. Electronic configuration of Cu^{+2} is:
 A) $4s^2 3d^9$ B) $4s^1 3d^{10}$ C) $4s^0 3d^9$ D) $5s^0 4d^9$
127. The characteristic properties NOT shown by transition elements will be
 A) Variable oxidation state C) Colored compound
 B) Formation of complex ions D) These are brittle
128. In which one of the following complexes the oxidation state of the central atom is three
 A) $[\text{Fe}(\text{CO})_5]$ B) $[\text{Al}[\text{Fe}(\text{CN})_6]]$ C) $\text{K}_2[\text{MnCl}_4]$ D) $[\text{Cu}(\text{NH}_3)_4]\text{SO}_4$
129. Hydrogenation of unsaturated oil is done by using
 A) Copper B) Finely divided Iron C) Finely divided Nickel D) Vanadium pentaoxide
130. Pick the correct statement:
 A) Chelates are usually more stable than ordinary complexes C) Chelates have no ring structure
 B) Ordinary complexes are more stable than chelates D) Monodentate ligands form chelates
131. Not a nitrogenous fertilizer
 A) HNO_3 B) NH_3 C) Urea D) NH_4NO_3
132. Which of the followings is decomposed by bacteria in flooded paddy fields
 A) NH_3 B) Urea C) NH_4NO_3 D) KNO_3
133. NH_3 reacts with CO_2 to produce
 A) Ammonium carbonate C) Ammonium Carbamate
 B) Ammonium carbide D) Ammonium carbamate
134. Which is tridentate ligand.
 A) $\text{C}_2\text{O}_4^{2-}$ B) Diethylenetriamine C) EDTA D) Hydrazine
135. The Scrubber in Contact process removes impurities by
 A) Steam B) Washing with liquid water C) Sulphuric acid D) Nitric acid
136. Sulphuric acid is a strong
 A) Monobasic acid B) Dibasic acid C) Tribasic acid D) Aprotic acid
137. For $\text{K}_2[\text{Cu}(\text{CN})_4]$ which one is correct
 A) Potassium tetra cyano copperate C) Ligand is positively charge
 B) Co-ordination number is 2 D) Central atom present in negative sphere
138. Which of the following fertilizer cannot change the pH of soil
 A) NH_4NO_3 B) $(\text{NH}_2)_2\text{CO}$ C) NH_3 D) KNO_3
139. The electrons lost by Zn to form Zn^{+2}
 A) 3d electron B) 4s electrons C) 3p electrons D) 3s electrons
140. In contact process SO_2 gas is cooled to 100°C by passing through ----- pipes?
 A) Pb B) Fe C) Cu D) Al

PHYSICS

141. Rate of decay is proportional to
 A) The number of nuclei initially present C) To the number of decayed nuclei
 B) The number of active nuclei present at that instant D) None of these
142. The reciprocal of decay constant (λ) of a radioactive substance is
 A) Half life B) Total life C) Mean life D) Curie
143. Identify the correct statement :
 A) Rate of decay is inversely proportional to initial number of nuclei
 B) Finite time is required by element to decay completely
 C) If $7/8^{\text{th}}$ of an element is decayed then un-decayed sample will be $1/8$
 D) Half life can be increased by increasing the number of nuclei
144. The radioactive decay constant can be written as:
 A) $\lambda = -\frac{\Delta N}{N}$ B) $\lambda = -\frac{\Delta N}{\Delta t}$ C) $\lambda = \frac{\Delta N}{\Delta t}$ D) $\lambda = -\frac{\Delta N}{N}$



- The particle x is
 A) Alpha Particle B) Beta- Positive C) Beta negative D) Gamma-ray
146. The particles having mass less than protons are:
 A) Mesons B) Quarks C) Baryons D) None
147. A pair of quark and anti-quark makes a:
 A) Baryons B) Meson C) Leptons D) None
148. During an α -decay, the neutron to proton ratio:
 A) Decrease B) Increase C) Remains same D) May increase or decrease
149. A high energy particle collide with a $^{14}\text{N}_7$ nucleus to produce a $^{17}\text{O}_8$ nucleus and a proton, the high energy particle will be
 A) a γ -photon alone B) a β -particle alone C) an α -particle alone D) a proton alone
150. One curie is equal to
 A) 3.70×10^{10} Bq B) 3.70×10^{10} Henry C) 3.7×10^{16} Bq D) 3.7×10^{25} Bq
151. The radioactive nucleus may emit :
 A) all the three α , β and γ radiations simultaneously
 B) only α and γ simultaneously
 C) only α and β simultaneously
 D) only one α or β or γ at a time
152. A $^{238}_{92}\text{U}$ nucleus emits two α -particles and two β -particles, and transforms into a thorium nucleus. The mass number and atomic number of the thorium nucleus so produced is
 A) 230, 90 B) 230, 88 C) 234, 90 D) 234, 88
153. In a β -decay
 A) The parent and the daughter nuclei have the same number of protons
 B) The daughter nucleus has one proton less than the parent nucleus
 C) The daughter nucleus has one proton more than the parent nucleus
 D) The daughter nucleus has one neutron more than the parent nucleus
154. One-sixteenth of the initial amount of a radioactive isotope remains un-decayed after two hours. The half-life of the isotope is
 A) 15 min B) 45 min C) 30 min D) 60 min
155. Three fourth of the radioactive sample is decayed in $3/4$ sec. The half life of the sample is
 A) $1/2$ sec B) $3/4$ sec C) 1 sec D) $3/8$ sec
156. The nucleus $^{242}_{94}\text{X}$ decay to $^{206}_{82}\text{Y}$ by emitting
 A) 9α and 12β particles B) 6α and 9β particles
 C) 9α and 6β particles D) 6α and 12β particles
157. The binding energy per nucleon of deuteron ^2_1H and helium nucleus ^4_2He is 1.1 MeV and 7 MeV respectively. If two deuteron nuclei react to form a single helium nucleus, then the energy released is
 A) 3.9 MeV B) 23.6 MeV C) 26.9 MeV D) 19.2 MeV
158. For atomic nuclei, the binding energy per nucleon
 A) increases continuously with increase in mass number
 B) decreases continuously with increase in mass number
 C) remains constant with increase in mass number
 D) first increases and then decreases with increase in mass number
159. Which one of the following belongs to Leptones group?
 A) Electrons B) Muons C) Neutrino D) All of them
160. Two down quarks and are up quark make a:
 A) Neutron B) Proton C) Electron D) Alpha particle
161. Charge on strange quark is:
 A) e B) $-\frac{1}{3}e$ C) $\frac{1}{3}e$ D) $\frac{2}{3}e$
162. The main source of energy in the stars and the sun is due to:
 A) Fission reaction B) Chemical reaction C) Fusion reaction D) None of above
163. The nuclear fission reaction is given by the following reaction:
 A) $^{235}_{92}\text{U} + ^1_0\text{n} \longrightarrow ^{141}_{56}\text{Ba} + ^{92}_{36}\text{Kr} + 3^1_0\text{n}$ B) $^{14}_7\text{N} + ^1_0\text{n} \longrightarrow ^{12}_6\text{C} + ^3_1\text{H}$
 C) $^{14}_7\text{N} + ^1_0\text{n} \longrightarrow ^{12}_6\text{C} + ^3_1\text{H}$ D) Both A and C
164. The sun is composed of primilary of
 A) aluminium B) plutonium C) hydrogen D) carbon
165. In p-p chain reaction the amount of energy given out is

- A) 200MeV B) 1MeV C) 25.7MeV D) 6.4 MeV
166. Enriched uranium is better as a fuel for a nuclear reactor because it has greater proportion of
A) ^{253}U B) ^{238}U C) ^{235}U D) ^{239}U
167. Average energy required to remove one nucleon from the nucleus is called
A) binding energy per nucleon C) binding energy
B) energy of reaction D) cohesive energy
168. In terms of quark content a beta decay can be written:
A) $udd \rightarrow uud + e^- + \bar{\nu}$ C) $udd \rightarrow uud + dd + \nu$
B) $udd \rightarrow uud + e^- + \nu$ D) $udd \rightarrow uud + ud + \nu$
169. A radioactive nucleus X undergoes a series of decays according to scheme

$$X \xrightarrow{\alpha} X_1 \xrightarrow{\beta} X_2 \xrightarrow{\alpha} X_3 \xrightarrow{\gamma} X_4$$
 If mass number and atomic number of X are 180 and 72 respectively. The corresponding numbers for X_4 are:
 A) 176,69 B) 172,69 C) 176,71 D) 172,71
170. Which one of the following is undeflected by electric or magnetic field
A) Electrons B) β -particles C) α -particles D) γ -particles
171. Complete the reaction $^{238}_{92}\text{U} \rightarrow ^{234}_{90}\text{Th} + \dots\dots\dots + Q$
A) ^4_2He B) $^1_1\text{H}^2$ C) $^1_1\text{H}^3$ D) $^1_1\text{H}^1$
172. Nuclear forces are
1) charge dependent 2) spin dependent 3) short ranged 4) Long range
A) only 1 and 2 are true C) only 1 and 3 are true
B) only 2 and 4 are true D) only 2 and 3 are true
173. The nuclei $^{13}_6\text{C}$ and $^{14}_7\text{N}$ can be described as
A) Isobars B) Isotones C) Isotopes of carbon D) Isotopes of nitrogen
174. The mass of α -particle is
A) Less than the sum of the masses of two protons and two neutrons
B) Equal to the mass of four protons
C) Equal to the mass of four neutrons
D) Equal to the sum of the masses of two protons and two neutrons
175. In the statements given below, the only one correct statement is
A) β -radioactivity is the process in an unstable atom whose atomic number remains unchanged
B) γ -radioactivity is the process which the daughter nucleus has atomic number 1 unit more than that of the parent nucleus
C) α -radioactivity is the process in which an unstable atom emits the nucleus of a helium atom
D) α -radioactivity is the process in which a heavy atom emits electromagnetic radiation of very high frequency
176. For the fission of heavy nucleus, neutron is more effective than proton or alpha particle because
A) neutron is heavier than alpha particle C) neutron is lighter than alpha particle
B) neutron is uncharged D) neutron moves with a small velocity
177. The mass number of a nucleus is :
A) always less than its atomic number C) always more than its atomic number
B) sometimes equal to its atomic number D) all of the above
178. In a fusion process, a proton and a neutron combine to give a deuterium nucleus. If m_n and m_p be the masses of neutron and proton respectively, the mass of deuterium nucleus is :
A) equal to $m_n + m_p$ C) more than $m_n + m_p$
B) less than $m_n + m_p$ D) can be less or more than $m_n + m_p$
179. In the fission of U^{235}
i) slow neutron is absorbed by U^{235}
ii) the products in the process are not same always, their atomic number varies from 34 to 58
iii) about 200 MeV energy is released per fission
iv) the product are always Ba and Kr
A) only i, ii & iii are true C) only ii and iv are true
B) only i and iii are true D) only ii and iii are true
180. The decay constant of radium is 4.28×10^{-4} per year. Its half life will be
A) 2000 years B) 1240 years C) 63 years D) 1620 years

ENGLISH

Choose the correct word words to complete each sentence.

181. Some of his companions died with him, a few fled abroad , but most took _____ in the castle.
 A) zenith B) refuge C) regret D) stunt
182. The fish was tender and _____, tasting a little spicy, richly flavoured by the oil, pepper and spices.
 A) succulent B) resonant C) tangled D) quizzical
183. In question – answering systems the computer generates answers to the user's _____ based on stored information.
 A) query B) yelp C) waft D) riot

SPOT THE ERROR: In the following sentences some segments of each sentence are underlined. Your task is to identify that underlined segment of the sentence, which contains the mistake that needs to be corrected. Fill the circle corresponding to that letter under the segment in the MCQ Response Form.

184. He wanted to make sure that he made his presentation creatively, effectively and persuaded.
 A B C D
185. The people who get ahead do lots of different things such as: studying, working hard and attend college.
 A B C D
186. The magistrate asked the prisoner what he was doing with his hand in the gentleman pocket.
 A B C D
187. He had to take care of himself when there were east winds, and autumn and winter were not really so bad.
 A B C D

In each of the following questions, four alternative sentences are given. Choose the CORRECT one and fill the circle corresponding to that letter in the MCQ Response Form.

188.
 A) He finished first though he began late.
 B) He finished first though he began lately.
 C) He finished first and he began late.
 D) He finished first ,and he began late.
189.
 A) When Chips entered the midst of the uproar there was an instant hush.
 B) When Chips entered into the midst of the uproar there was an instant hush.
 C) When Chips entered in the midst of the uproar there is an instant hush.
 D) When Chips entered in the midst of the uproar there was an instant hush.
190.
 A) Whenever he rose to speak in a meeting, or even when he talked across a table, people prepared their minds and faces for the joke.
 B) Whenever he rose to speak at a meeting or even when he talked across a table, people prepared their minds and faces for the joke.
 C) Whenever he rose to speak at a meeting, or even when he talked across a table, people prepared their minds and faces for the joke.
 D) Whenever he rose to speak at a meeting, or even when he talked across a table, people prepared their minds and faces of the joke.
191.
 A) But it wasn't sleep, and it wasn't quite wakefulness, either; it was a sort of in-between state.
 B) But it wasn't sleep, but it wasn't quite wakefulness, either; it was a sort of in-between state.
 C) But it wasn't sleep, and it wasn't quite wakefulness, either it was a sort of in-between state.
 D) But it wasn't sleep and it wasn't quite wakefulness, either; it was a sort of in-between state.
192.
 A) The mother asked her boy where had he been all the afternoon.
 B) The mother asked her boy where he had been all the afternoon.
 C) The mother asked her boy where he has been all the afternoon.
 D) The mother asked her boy where he had all the afternoon.
193.
 A) Afterwards they learned that five bombs had fallen in and out Brookfield.
 B) Afterwards they learned that five bombs had fallen into and around Brookfield.
 C) Afterwards they learned that five bombs had fallen in and around Brookfield.
 D) Afterwards they learned that five bombs had fallen in and into Brookfield.

In each of the following questions, four alternative meanings of a word are given. You have to select the NEAREST CORRECT MEANING of the given word and fill the appropriate Circle on the MCQ Response Form.

194. **TUMULTUOUS**
 A) supercilious B) exhaustive C) gruesome D) vehement
195. **Tentatively**
 A) unevenly B) slovenly C) strenuously D) pertinaciously
196. **Rarely**
 A) oddly B) scarcely C) awkwardly D) momentarily
197. **Reluctantly**

198. **Sailed**
A) industriously B) falteringly C) laboriously D) indefatigably
A) wailed B) soared C) bewailed D) derailed

In each of the following questions, four alternative words are given. You have to select the option OPPOSITE in meaning to the given word and fill the appropriate Circle on the MCQ Response Form.

199. **Revolving**
A) aggrandized B) jeopardized C) mobilized D) immobilized
200. **Potential**
A) enunciation B) expatiation C) Emaciation D) elucidation

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